

UNCLASSIFIED

AD NUMBER

AD367513

CLASSIFICATION CHANGES

TO: unclassified

FROM: confidential

LIMITATION CHANGES

TO:

Approved for public release, distribution  
unlimited

FROM:

Distribution: USGO: others to Director,  
Defense Atomic Support Agency, Washington,  
D. C., 20301.

AUTHORITY

DSWA ltr., 18 Apr 1997; DSWA ltr., 18 Apr  
1997

THIS PAGE IS UNCLASSIFIED

XRD  
146

(14) XRD-146

CONFIDENTIAL  
Security Information

BUREAU OF SHIPS

~~CONFIDENTIAL~~

# TECHNICAL INSPECTION REPORT

367513

CONFIDENTIAL  
Security Information

Classification (Cancelled) (Changed to  
by authority of JOINT CHIEFS OF STAFF JCS 1795/36 DATED 15 APRIL 1949  
By John H. Degette Date 23 SEP 1953

OPERATION CROSSROADS,  
U.S.S. YO 160,

TEST BAKER

U. S. GOVERNMENT AGENCIES MAY OBTAIN COPIES OF THIS REPORT DIRECTLY  
FROM DDC. OTHER QUALIFIED DDC USERS SHALL REQUEST THROUGH

Director  
Defense Atomic Support Agency  
Washington, D. C. 20301

CONFIDENTIAL  
Security Information

(11) 1947,  
(12) 18p.

OPERATION CROSSROADS

DIRECTOR OF SHIP MATERIAL

JOINT TASK FORCE ONE

DDC

DEC 2 1955

TISIA E

REG. NO.

SECRET

CONFIDENTIAL

GROUP 3  
Downgraded at 12 year intervals;  
Not automatically declassified.

1 JAN 1965 6760

**CONFIDENTIAL**

**BUREAU OF SHIPS GROUP  
TECHNICAL INSPECTION REPORT**

U. S. GOVERNMENT AGENCIES MAY OBTAIN COPIES OF THIS REPORT DIRECTLY  
FROM DDC. OTHER QUALIFIED DDC USERS SHALL REQUEST THROUGH

Director  
Defense Atomic Support Agency  
Washington, D. C. 20301

"This document contains information affecting the National  
Defense of the United States within the meaning of the  
Espionage Laws, Title 18, U. S. C., Section 793 and 794.  
Its transmission or the revelation of its contents in any  
manner to an unauthorized person is prohibited by law."  
U.S.S. Y-160

APPROVED:

F.X. Forest,  
Capt., U.S.N.

**SECRET**

Page 1 of 18 Pages

**CONFIDENTIAL**

GROUP 3  
Declassified at 12 year intervals  
Not automatically declassified.

1 JAN 1965

~~TABLE OF CONTENTS~~

	PAGE NO.
Overall Summary of Damage	3
Photographic Section	6

SECRET

U.S.S. YO-160

## TECHNICAL INSPECTION REPORT

### OVERALL SUMMARY

#### I. Target Condition After Test.

- (a) Drafts after test; list; general areas of flooding, sources.

The YO-160 was sunk in test B. The Technical Observer in PBM Charlie reported at 0908 that he was unable to locate the ship in the array. She does not appear in any photographs taken after the smoke had cleared. At 09b0, the Technical Observer officially reported her as sunk.

Part of the YO-160's flooding may have been due to swamping by the descending water column as seen in photographs on pages 13, 14, 15, 16, 17, and 18.

- (b) Structural damage.

Unobserved.

- (c) Other damage.

Unobserved.

#### II. Forces Evidenced and Effects Noted.

- (a) Heat.

Unobserved.

- (b) Fires and explosions.

Neither fire nor explosions were seen.

- (c) Shock.

Unobserved except as in photograph on page 12.

SECRET

U.S.S. YO-160

(d) Pressure.

The descending water column shown in photographs on page 13, 14, 15, 16, and 17 exerted pressure on the ship's structure, probably damaging superstructure and hull girder. However, no dives were made and no confirmatory information is available. The wave caused by the underwater explosion lifted the YO-160's bow approximately 36' as shown on photographs taken from Enyu.

III. Results of Test on Target.

(a) Effect on propulsion and ship control.

Unobserved.

(b) Effect on gunnery and fire control.

Unobserved.

(c) Effect on watertight integrity and stability.

Both were completely destroyed.

(d) Effect on personnel and habitability.

Unobserved prior to sinking.

(e) Total effect on fighting efficiency.

Completely destroyed.

IV. General Summary of Observer's Impressions and Conclusions.

Available sources of information are photographs of burst taken from towers and planes after burst photographs taken of the array from PBM Charlie, the reports of the Technical Observer in PBM Charlie, and the Bureau of Ships Interim Report.

The YO-160 had been severely damaged in test A. Picture showing condition of YO-160 as she floated just prior to test B are shown on pages 7 through 10.

SECRET

U.S.S. YO-160

Page 4 of 18 Pages

The YO-160 was seen briefly after the inception of the underwater explosion. After the ship was covered by the descending water column and mist she was never seen again.

The photograph on page 11 is the first frame showing the burst. The YO-160 can be seen to the left of the SARATOGA as indicated by the arrow. The photo on page 12 shows the ship engulfed by the shock wave three seconds after the burst. The photograph on page 13, taken 33 seconds after the burst shows the ship partially obscured by the shock wave. Water can be seen starting to fall from the column. The photograph on page 14, burst plus 42 seconds, shows the water column descending on the ship. Photographs on pages 15, 16, 17, and 18 taken at three second intervals after photograph on page 14 show the water column descending on and finally engulfing the YO-160.

V. Preliminary Recommendations.

None.

VI. Pre-test Statistics.

Instructions for loading the vessel specified the following:

Diesel Oil	As desired.
Gasoline	None.
Ammunition	None.
Potable and Reserve Feed Water	95%
Salt Water Ballast	95%

Details of the actual quantities of the various items aboard are included in Report 7, Stability Inspection Report, submitted by the ship's force in accordance with "Instructions to Target Vessels for Test and Observations by Ship's Force" issued by the Director of Ships Material. This report is available for inspection in the Bureau of Ships Crossroads Files.

The drafts of the YO-160 at time of burst were unknown as no draft marks were fitted. She had no list.

SECRET

U.S.S. YO-160

PHOTOGRAPHS

TEST BAKER

SECRET

U.S.S. YO-160

Page 6 of 18 Pages





BB-CR-227-520/20 July Print 109 - Pre "B" test view of YO-160's bow.

SECRET

U.S.S. YO-160

Page 7 of 18 Pages

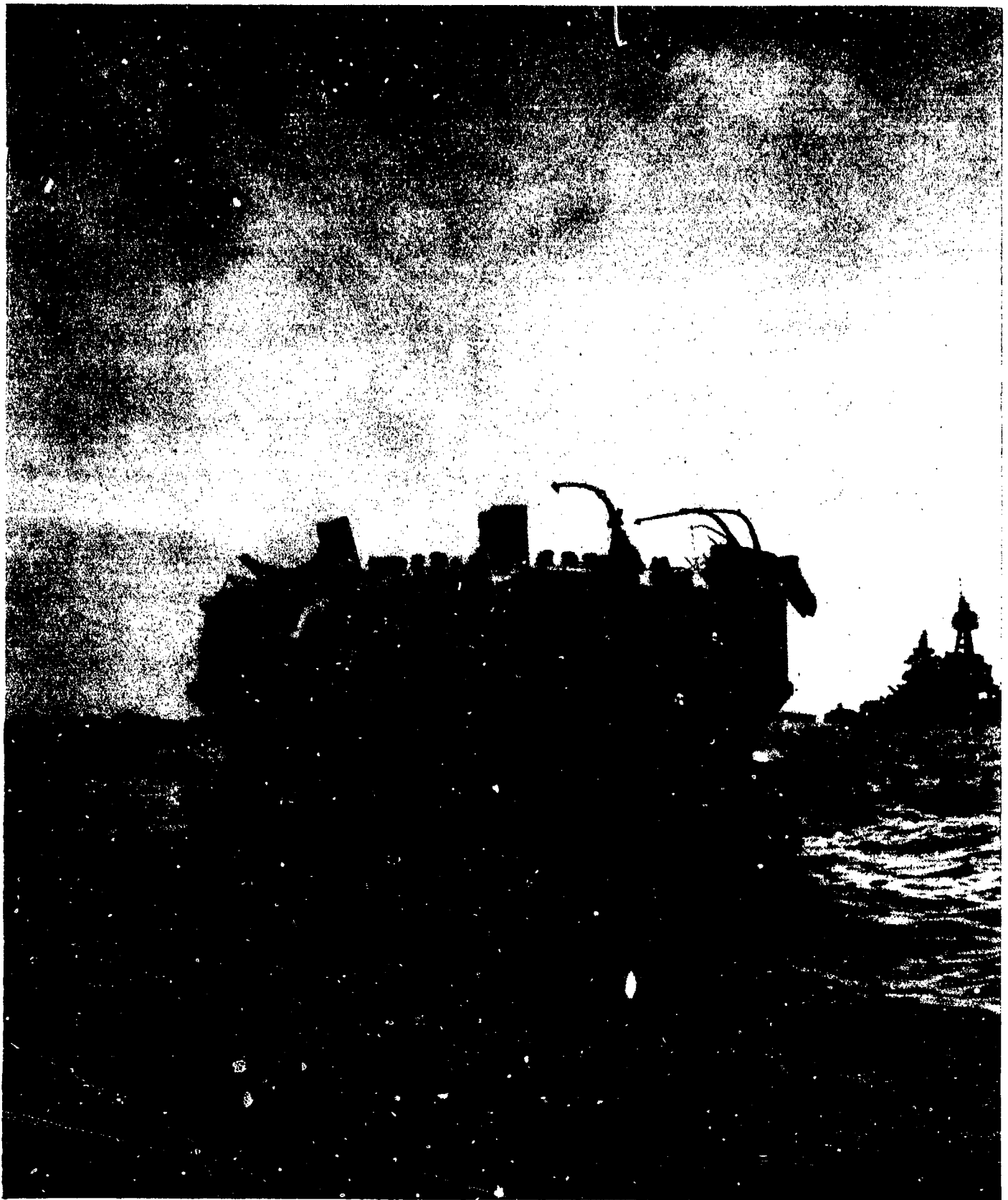
6760



BB-CR-227-520/20 July Print 112 - Pre "B" test view of  
YO-160's port quarter.

SECRET

U.S.S. YO-160



BB-CR-227-520/20 July Print 105 - Pre "B" test view of YO-160's stern.

SECRET

U.S.S. YO-160

Page 9 of 18 Pages

6760



BB-CR-227-520/20 July Print 107 - Pre "B" test view of  
YO-160's starboard side.

SECRET

U.S.S. YO-160

Page 10 of 18 Pages

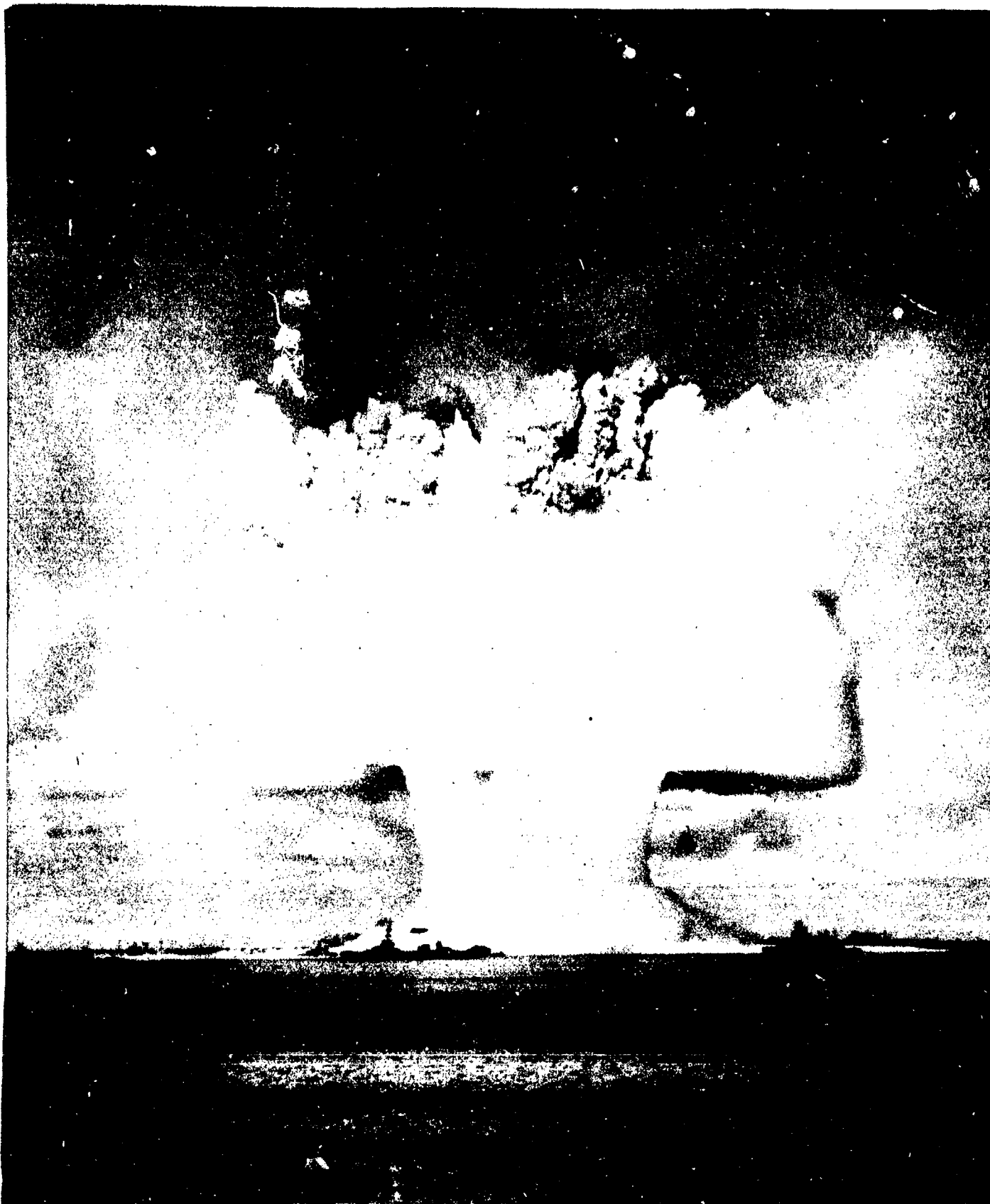
6760



DB-CR-T2-233-270 Print #1. Target array the instant after underwater explosion. YO-160 is beneath arrow.

SECRET

U.S.S. YO-160



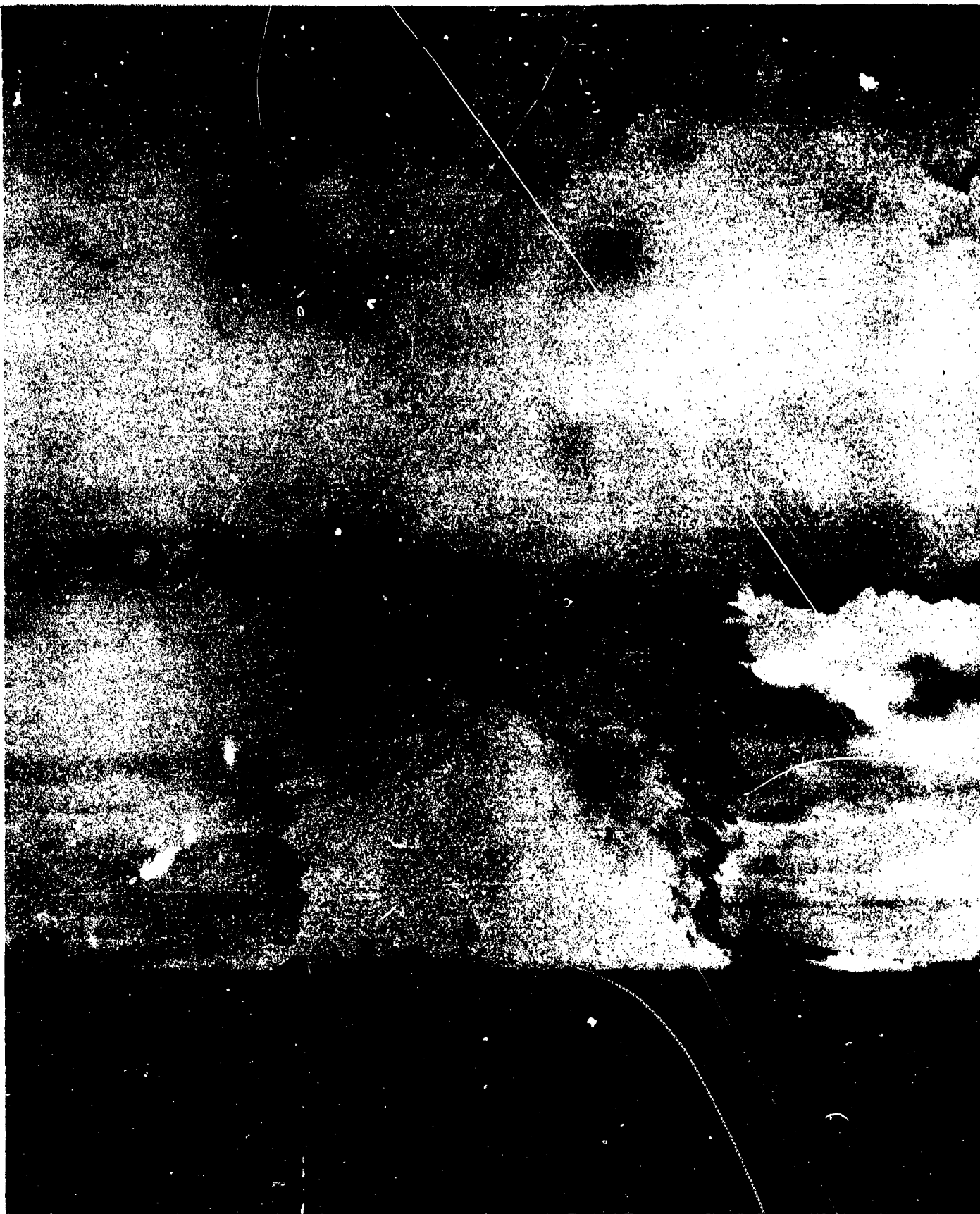
DB-CR-T2-233-270 Print #2. Approximately six seconds after explosion. YO-160 is covered by water shock wave.

SECRET

U.S.S. YO-160

Page 12 of 18 Pages

6760



DB-CR-T2-233-270 Print #11. 33 seconds after burst. Bow  
of YO-160 just visible.

SECRET

U.S.S. YO-160

Page 13 of 18 Pages

6760



DB-CR-T2-233-270 Print #14. 42 seconds after explosion.  
YO-160 is still floating. Water column beginning to fall.

SECRET

U.S.S. YO-160

Page 14 of 18 Pages

6760





DB-CR-T2-233-270 Print #15. YO-160 still visible 45  
seconds after burst.

SECRET

U.S.S. YO-160

Page 15 of 18 Pages

6760



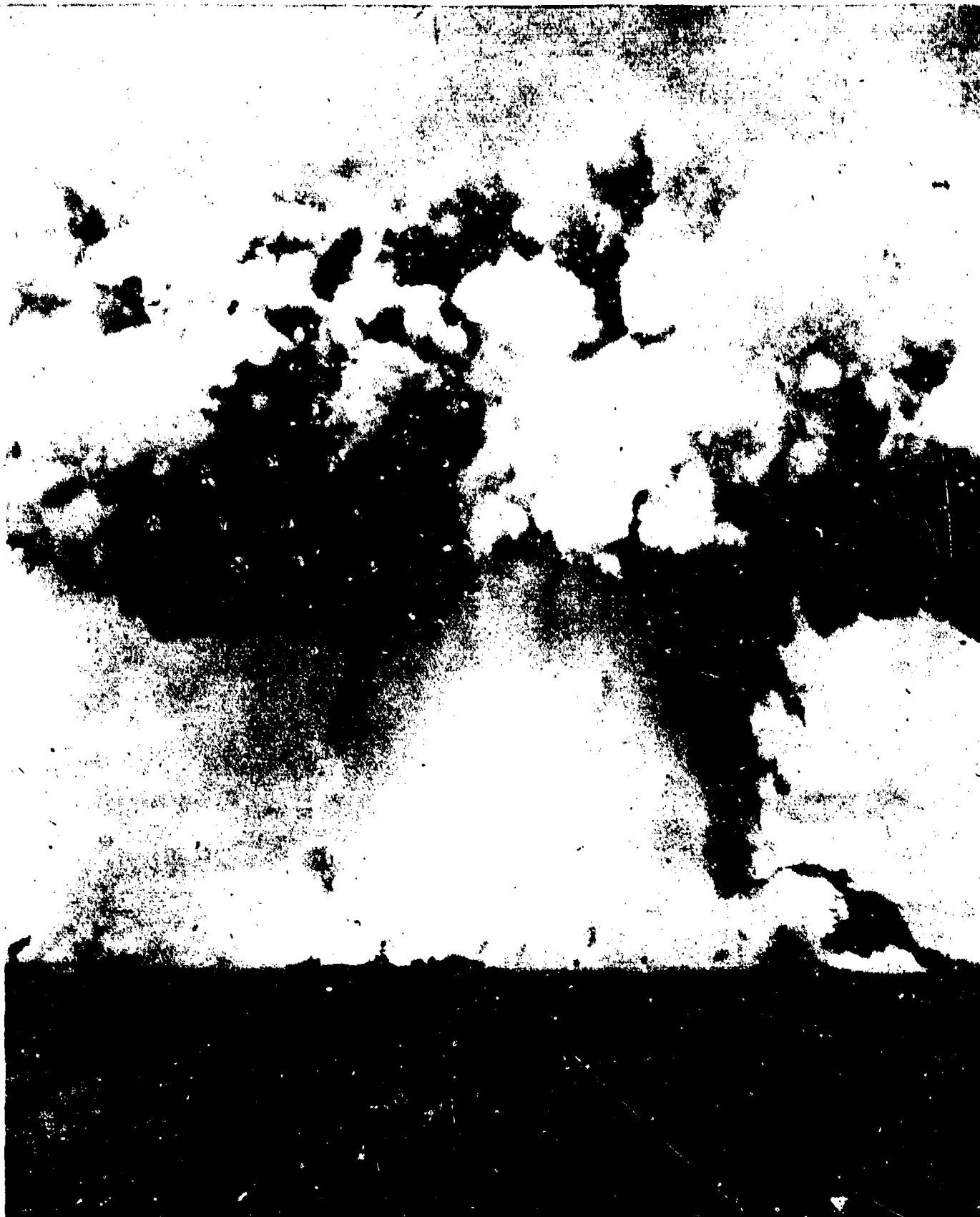
DB-CR-T2-233-270 Print #16. 48 seconds after burst.

SECRET

U.S.S. YO-160

Page 16 of 18 Pages

6760



DB-CR-T2-233-270 Print #17. 51 seconds after burst.

SECRET

U.S.S. YO-160

Page 17 of 18 Pages

6760



DB-CR-T2-233-270 Print #18. Last view of floating YO-160,  
.54 seconds after burial

~~SECRET~~

U.S.S. YO-160

**CONFIDENTIAL**

Page 18 of 18 Pages

6760



Defense Special Weapons Agency  
6801 Telegraph Road  
Alexandria, Virginia 22310-3398

TRC

18 April 1997

MEMORANDUM FOR DEFENSE TECHNICAL INFORMATION CENTER  
ATTENTION: OMI/Mr. William Bush (Security)

SUBJECT: Declassification of Reports

The Defense Special Weapons Agency has declassified the following reports:

/✓AD-366588 <del>4</del>	XRD-203-Section 12✓
x ——— AD-366589 <del>4</del>	XRD-200-Section 9✓
AD-366590 <del>4</del>	XRD-204-Section 13✓
AD-366591 <del>4</del>	XRD-183✓
/✓AD-366586 <del>4</del>	XRD-201-Section 10✓
/✓AD-367487 <del>4</del>	XRD-131-Volume 2✓
/✓AD-367516 <del>4</del>	XRD- <del>13</del> 143✓
/✓AD-367493 <del>4</del>	XRD-142✓
AD-801410L✓	XRD-138✓
AD-376831L✓	XRD-83✓
AD-366759 <del>4</del>	XRD-80✓
/✓AD-376830L <del>4</del>	XRD-79✓
/✓AD-376828L <del>4</del>	XRD-76✓
/✓AD-367464 <del>4</del>	XRD-106✓
AD-801404L✓	XRD-105-Volume 1✓
/✓AD-367459 <del>4</del>	XRD-100✓

TRC

18 April 1997

Subject: Declassification of Reports

✓✓ AD-367517 ✕	XRD-141 ✓
AD-366762 ✓	XRD-84 ✓
AD-366760 ✓	XRD-81 ✓
AD-366761 ✓	XRD-82 ✓
AD-367501 ✓	XRD-158-Volume 1 ✓
AD-367507L ✓	XRD-152-Volume 4 ✓
✓✓ AD-367495 ✕	XRD-184 ✓
✓✓ AD-367485 ✕	XRD-129 ✓
✓✓ AD-367484 ✕	XRD-128 ✓
✓ AD-367483 ✕	XRD-127 ✓
✓ AD-367482 ✕	XRD-126 ✓
AD-367488 ✓	XRD-132
✓ AD-367480 ✕	XRD-124 ✓
AD-801409L ✓	XRD-135 ✓
✓ AD-367490 ✕	XRD-136 ✓
✓ AD-367492 ✕	XRD-137 ✓
AD-801411L ✓	XRD-139 ✓
✓ AD-367518 ✕	XRD-140 ✓
AD-367515 ✓	XRD-144 ✓
AD-367514 ✓	XRD-145 ✓
✓ AD-367468 ✕	XRD-110-Volume 2 ✓
AD-367513 ✓	XRD-146 ✓
✓ AD-367497 ✕	XRD-162 ✓

TRC

18 April 1997

Subject: Declassification of Reports

AD-801406L ✓ XRD-114✓

In addition, all of the cited reports are now **approved for public release; distribution statement "A" now applies.**

*Arldith Jarrett*

ARDITH JARRETT

Chief, Technical Resource Center